The Asian Honeyguides[1]

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Our overall knowledge of the honeyguides has grown considerably since my 1955 monograph, as is evidenced by the fact that we now recognize 17 species as against 11 at the time that publication was issued, by the fact that we know more about the nature of wax digestion by some of the African species, and by our considerable accumulation of additional data on the choice and relative frequency of brood host selection by a number of African honeyguides. However, this does not necessarily mean that our information about the ethology of all the members of this fascinating group of birds has advanced accordingly. The two Asian species of the family, as well as many of the African ones, unfortunately have remained quite unstudied in the field, and are still known primarily as 'museum species' rather than as living organisms. I fully realize the great difficulties involved in studying them in life, but I would like to emphasize the importance, even the critical importance, of furthering and deepening our knowledge and understanding of the two geographically 'remote' members of this remarkable, and otherwise African, avian family. One cannot help but want to know more about the two species of honeyguides found in Asia, so far from the rest of their relatives; to know whether they present similar or divergent ethological patterns; whether either or both of them show anything comparable to the so-called 'guiding behaviour' of the African greater honeyguide (very inconclusive evidence seems to suggest they do not, but this is uncertain); whether they are brood parasites (it would be most unlikely if they are not, but this remains to be learned); whether either or both have mandibular as well as maxillary egg teeth when hatched. Questions like these are far easier to ask than to answer, but they are worth making the necessary effort to solve. This paper will have served its purpose if it may help to induce local observers in Asia to make special and concerted efforts to fill in any of these gaps in our knowledge of these birds.

When we consider the almost complete absence of biological information still available about the two Asian honeyguides, the Himalayan *Indicator xanthonotus*, and the Malayan *Indicator archipelagicus*, it is surprising, indeed, it is historically ironical, that of all the species in the family, it was one of these, the Himalayan honeyguide, that was actually

1 Received March 1972.

* Dedicated to Sálim Ali, the foremost ornithologist of India, on the occasion of his seventy-fifth birthday.

the very first one of the whole group to be written about, even though the authors involved had never seen it, had no idea what it really looked like, and were led to mention it only because they had heard of its cerophagous, or wax-eating, habit. This was more than seventeen centuries ago, at a time when none of the African species were even known to what we like to term 'civilized' man. This extremely early awareness of this bird, the only member of its family to occur in India, has probably been overlooked by most current naturalists, as its recounting is buried in my monograph, referred to above. For this reason it may be well to state again the original 'source material' of this precocious knowledge.

While assembling data for my 1955 book, I mentioned to my late friend, Austin H. Clark, my disappointment in the lack of published field notes on this honeyguide. At his suggestion, as a most unpromising 'last resource' measure, we decided to search in the libraries to see if, by some remote chance, there might be anything on record about the use of bees-wax in Asia that might yield any adventitious crumbs of information about the only birds in that continent that share with man an interest in this substance. We already knew that bees-wax was a prized article of commerce in ancient times; it was used for the treatment of dysentery, for wounds and fractures. During the all too frequent recurrences of famine, men ate bees-wax and thought it helped to assuage their hunger, and they added to this dubiously nutritious programme the thought that by eating bee-comb they would also slow up the advent of senility.

In this search we were fortunate beyond our expectations, and we did find an old account that could only be connected with the Himalayan honeyguide. Our clue to this early mention of the bird was found in Read's 1941 book on old Chinese materia medica. In the section on bees-wax, therein classed as one of the 'insect drugs', Read wrote that in the *Po-wu-chih*, a compendium of information of all sorts originally amassed by Chang Hua in the Chin Dynasty, in the latter part of the third century (of the Christian era) it was stated that the bees-wax from wild bees' nests was very much in demand and was highly prized in China at that time, and that it came from the remote glens and solitary ridges of the high mountains to the south, obviously the Himalayas. Chang Hua's manuscript account appears to have been gathered from the reports of traders and travellers who informed him that the places where the wild bees' nests are found are all on steep cliffs which cannot be scaled, and that to reach them in order to gather the wax as well as the honey, people have to go to the tops of the mountains and then are lowered over the precipices in baskets on long ropes. The important point for our present interest is that Chang Hua goes on to state that when the bees go away and leave the wax comb on the rocks, flocks of sparrow-like birds called *ling ch'ueh* or tits, also called *mi mu*, blackish

in colour, come and peck it nearly all away. These birds are said to be found '. . . in the south, where in the first lunar month they go to mountain cliffs to find a quiet place,' and where there are bees. It appears, from this account, that the local Chinese workers who were involved as wax gatherers had to compete with these unknown, undescribed birds, which were undoubtedly Himalayan honeyguides.

According to Wylie (1922) the *Po-wu-chih* was apparently lost during the Sung period, and the work as we now know it was painstakingly reassembled from bits and pieces of it that had been preserved in a number of other Chinese compendia. The resulting reassemblage was completed in the mid years of the twelfth century by Lé Shih, in ten books under the title *Suh-pô-wûh-ché*.

An earlier, great 80-volume encyclopedic treatise on all sorts of information, the *T'ai-ping-yu-lan*, compiled by imperial command by Li Fang and his staff, was completed in the year 983. In this work there is a fuller version of Chang Hua's account of seven centuries earlier, kindly translated for me by the late Archibald G. Wenley, as follows:

> It also says in many distant countries there are secluded places in the mountain districts which produce bees wax. These bees wax places are all abrupt cliffs and rock walls which are unclimbable, and only by raising baskets to the top of the mountain and lowering them to the bottom is it obtained. When the bees leave not to return, the surplus hives and wax are unlimited. There is a small bird in shape as a sparrow. It comes in flocks of thousands to peck at it. By spring it is all used up and the place is as if it had been scrubbed and washed. In spring the bees all return to the clean place just as before. Year by year it is like this without any confusion. People also note these smooth places. They call them [the birds] wax honey birds, and call them spiritual sparrows (because) they are entirely unable to catch them . . . . It was added that in the spring the bees return and store up honey as before, either in the surviving combs of the previous season or in newly constructed ones. The people protect these places, which they call 'honey preserves'.

The Himalayan honeyguide is the only bird in the area known to eat bee-comb, and there can be no question but that it is the same as the 'wax-honey bird' or 'spiritual sparrow' of Li Fang's encyclopedia. The large size of the flocks reported is undoubtedly an exaggeration, and is an item that need not really bother us; it is the kind of error that easily could creep into a compiled work written by scholars who had no personal experience with the actual situation in a very remote region, and who, quite understandably, were tempted to embellish their account with such dramatic statements.

As I wrote in my 1955 book, '. . . it follows that 1,700 years ago the Chinese scholars had heard of the wax-eating habit of a bird they had never seen for themselves, a bird that remained unknown to the Western World for nearly 16 centuries longer, and of whose wax-eating habits we have only become aware in the last few years. There is even a curious

parallel between the old Chinese appellation ' spiritual sparrow ' and Hume's subgeneric one, *Pseudofringilla*, proposed for this bird some 30 years after Blyth first made it known . . . ' to science.

The first corroboration by a modern collector naturalist of the habits of the Himalayan honeyguide was made in Garhwal in the 1940's by Walter Koelz, who kindly sent his notes to me for inclusion in my 1955 book. He noted that swarms of bees built their exposed combs on the vertical surfaces of high cliffs. '. . . The honeyguides would perch in the trees and then fly to the cliffs where they often clung like woodpeckers and pecked at the wax. Sometimes they would be within a few feet of the bees, of which they seemed wary and afraid . . . . Gizzards of a dozen or so specimens collected all contained bees-wax . . . .'

That the bird is subject to seasonal wandering altitudinally, if not to extensive geographic migration, in Nepal, was suggested by Ripley (1950, p. 376), thus corroborating the ancient inference of seasonality in the birds' presence and activity around the ' bee cliffs '.

Alerted to the problem of the Himalayan honeyguide by earlier correspondence, Fleming (1964, p. 523) made special inquiries about it from his local assistants in Nepal. He found that in the spring of the year the bees left their usual wintering areas to go to their ' hidden ravines ' in the remote mountain gorges. At Bigu (6,000 feet) his head mantold him, ' . . . . that his men went once a year to get honey from cliffs about three miles away and that he would send his man the next day to show us the place. Sagar Rana, of our party, found the location. When he scrambled down to the overhanging cliff above a stream, he saw a bird, apparently standing on its head, pecking at the remains of a bees' comb. It proved to be a honeyguide whose stomach was crammed with wax.

' We visited the place again and waited for ten minutes but saw no movement. Then Sagar made out a bird, like a small barbet, sitting on a dead branch about a foot or two from the face of the rock near where bees were flying in and out. It was another honeyguide . . . .'

Fleming's observations bear out the old Chinese account surprisingly closely. Even his noting the bird feeding upside down confirms the ancient parallel to a titmouse, which often feeds in this position. Fleming wrote me at the time that all the ancient Chinese authors had reported was quite in keeping with what he had seen.

The Himalayan honeyguide is known only from the highlands, at elevations of from 5,000 to over 9,000 feet, from near the Afghanistan border, east along the Himalayas across Garhwal, Nepal, Bhutan and Nagaland to the Myitkyina District of northern Burma. It is the only honeyguide to have such an exclusively altitudinal range, especially now that the African *Indicator pumilio* has been found to descend from its originally thought similarly high habitat to much lower altitudes. The other Asian species, *Indicator archipelagicus*, is a lowland bird of a

distant region—Malaya, Siam, Borneo and Sumatra, at altitudes from sea level to 3,000 feet. Obviously, the two never come in contact, and, indeed, they seem less related to each other than each does to some of the African species. This fact, in itself, adds much interest to them as extreme examples of geographic isolates, and increases our desire to know more about them as living entities.

The presence of a honeyguide (*Indicator archipelagicus*) in south-eastern Asia presents no surprisingly different, or unique, zoogeographic fact as there are numerous instances of faunal elements common to the wooded areas of southern Asia and of Africa. But the presence of another species (*Indicator xanthonotus*) in the Himalayan highlands has no such parallel. Its existence there poses a puzzling problem, unfortunately a problem to the answer of which we have no suggestive clues as yet.

Our understanding, or, more accurately, our attempted interpretation, of the phylogeny of the two Asian species is, of course, only hypothetical, but there is no reason to change the diagram of their relationships to the rest of the family proposed in my 1955 book (p. 10); the Himalayan species seems more nearly related to the subgenus *Melignothes*, the Malayan one to the subgenus *Indicator*. We have no way of estimating even approximately how long they have been in existence. One thing is clear about them; their respective stocks have not been involved in parallel speciation as has been the case in some of the African honeyguides. This suggests (but does not prove) that in the habitats of each of the two Asian species there was not ecological 'room' for more than a single kind of honeyguide. It is not at all obvious why this should be so, as in Africa we find numerous instances of sympatric existence of two or more *Indicator* species of similar habits.

In a family noted for very limited phenotypic potential, the Himalayan honeyguide is an outstandingly aberrant development. In the course of its existence it has become geographically differentiated into three subspecies, whose distinguishing differences are only slight. The Malayan honeyguide has no currently recognized races. It might be more accurate to say that until sufficient specimen material of the latter from various parts of its discontinuous, and, hence, suspiciously expedient, range becomes available for study, this honeyguide has not been found to be divisible into races, although attempts have been made in the past to distinguish an island race and a mainland one.

The Himalayan *Indicator xanthonotus* is unique in its coloration, being the only member of the entire family with patches of bright colour—orange to orange-yellow on the lower back and rump, less intense but still bright, orange yellow on the forehead and cheeks. The large bright area on the lower back is, it is true, largely concealed by the folded wings when the bird is at rest, but it must show up as a brilliant 'sign'

or ' beacon ' when the bird takes flight again. One cannot help but wonder what, if any, adaptive purpose this surprising colouristic signal may serve. Because the bird is so aberrant in its appearance, it is intriguing to speculate whether or not it has, along with its odd coloration, any as yet unsuspected ethological specialization. This is a question that only prolonged and careful field observation can answer. Nothing in the known habits of any of the plain-coloured African species gives even the slightest suggestion as to what purpose such adaptation might be directed. It is, of course, possible that it serves no purpose other than as a communicating visual ' flash ' to others of its own kind, or as a colouristic ' lure ', which by its sudden disappearance when the bird comes to rest, may serve to bewilder possible pursuing predators. The orange rump patch of the Himalayan honeyguide may thus be comparable in its function to the red or yellow rumps of some of the small barbets of the genus *Pogoniulus*, or to the white rump patch of the semiterrestrial woodpecker, the flicker of North America, *Colaptes auratus*. The fact remains, however, that so far we simply do not know, and it would be most interesting to learn more about it. It is true that two other species of the same genus, *Indicator indicator* of Africa, and *Indicator archipelagicus* of southeastern Asia, have a little band of yellow on the ' shoulders ', i.e. on the lesser upper wing coverts, but this colour is not very bright in hue, and is usually wholly or at least partly concealed in the folded wing when the bird is at rest, and is hardly visible when in flight.

In its bill structure, rather small and decidedly stubby, the Himalayan bird agrees most closely with some of the African small-billed species of *Indicator*, the group formerly called the subgenus *Melignothes*, including such drab, plain-coloured birds as *minor*, *conirostris*, *exilis*, *pumilio*, *meliphilus*, and *narokensis*, none of which flaunt even a trace of the bright colours of *xanthonotus*. The Malayan honeyguide, *Indicator archipelagicus*, on the other hand, has a larger bill, and agrees in this respect with the African greater honeyguide, *Indicator indicator*, to the female plumage of which it bears much resemblance. In its call notes it appears, from descriptions, to be similar to the scaly-throated honeyguide, *Indicator variegatus*, another similarly large-billed species. While the Himalayan honeyguide is strikingly different in appearance from all its relatives, the Malayan is not ; it is obviously a distinct species, but fits very well into the overall picture of its subgenus.

We know, from stomach contents of individuals collected as specimens, that both the Malayan and the Himalayan honeyguides regularly consume quantities of bee-comb. We also know that the wax-breaking bacterium, *Micrococcus cerolyticus*, that enables the African *Indicator minor* and *Indicator indicator* to break down bees-wax and render it at least partly digestible, also occurs in Borneo in the range of *Indicator archipelagicus*. It seems safe to assume that this same microbe is involved

in the metabolism of bees-wax in this honeyguide as well. The *Micrococcus* is a soil bacterium that is absorbed together with soil-derived nourishment into the roots of the plants and thence into their flowers, where it is inadvertently acquired by the bees, which, in turn, equally inadvertently, transfer it to their hives where the honeyguides get it when eating the bee-comb. To date no one has made a search for this microbe in the Himalayan habitat of *Indicator xanthonotus*. Consequently we cannot say if it or another bacterium, ingested along with the wild bee-comb into the alimentary tract of that bird, is similarly operative in its nutritional metabolism.

Information about all parts of the life-history of each of the two Asian honeyguides would be most welcome, not only for our knowledge of these species but to help to complete and to formulate more meaningfully our concepts of the whole family. In the case of the Malayan species there is little reason to expect anything very different from what we know of some of the African *Indicators*, but in the case of the Himalayan one the unknown seems more intriguing because we do not know what we may anticipate. The recent (1970) summary of the little that we know of this bird, by Ali and Ripley, is a useful starting point for further investigation. I know of no bird in the entire Indian fauna that offers a more alluring prospect to the field student.

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